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Reel # 457

Rakhlin V.L.

SOV/35-59-8-6344

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959.  
Nr 8, p 35

AUTHORS: Troitskiy, V.S., Zelinskaya, M.R., Rakhlin, V.L., Bobrik, V.T. ✓

TITLE: Results of Observations of the Solar Radio-Frequency Emission  
at Wave-lengths of 3.2 and 10 cm during the Total Sun's Eclipse  
on February 25, 1952, and June 30, 1954

PERIODICAL: V sb.: Polnyye solnechn. zatmeniya 25 fevr. 1952 i 30 iyunya  
1954, Moscow, AS USSR, 1958, p 330

ABSTRACT: See RZhAstr, 1957, Nr 1, p 489.

Card 1/1

Category : USSR/Radiophysics - Application of radiophysical methods

I-12

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1984  
Inst : Leningrad University

Author : Troitskiy, V.S., Zelinskaya, M.R., Rakhlin, V.L., Bobrik, V.T.

Title : Results of Observation of Radio Waves from the Sun at 3.2 cm and 10 cm  
During the Total Solar Eclipses of 25 February 1952 and 30 June 1954.

Orig Pub : Tr. 5-go soveshchaniya po vopr. kosmogonii. 1955, M., AN SSSR, 1956, 182-196,  
diskus. 196-202

Abstract : In 1952 the observations were made at the Archman Station at wavelengths of 3.2 and 10 cm; in 1954 the observations were made near Gor'kij at 1.5 meters and in Novomoskovsk at 3.2 and 10 cm. Measurements of the radiation, made before and after the eclipse, made it possible to estimate the sun's temperature during the day of the eclipse. In February 1952 the effective temperature was 50,000°K at 10 cm and 12,400° at 3.2 cm. In June 1954 the effective temperature was 43,000°K at 10 cm and 11,000 at 3.2 cm. From the values obtained for the residual intensity in the total phase, it was possible to obtain the effective radii of the sun (in optical radii), namely 1.06R and 1.04R at 3.2 cm and 1.2R and 1.07R at 10 cm for 1952 and 1954 respectively. These results indicate that the chromosphere in the corona was more compressed in 1954 than in 1952, and may be a manifestation of the cyclic change in solar activity. The level causing the 10-cm radiation was reduced more (by 1.8 times) than the

Card : 1/2

Category : USSR/Radiophysics - Application of radiophysical methods

I-12

Ab6 Jour : Ref Zhur - Fizika, No 1, 1957 No 1984

level responsible for the 3.2-cm radiation (by 1.5 times). Comparison of the 1952 eclipse curves with calculations has shown that no increase in brightness is observed at the edge of the disk at 3.2 cm, and that at 10 cm there exists a ring radiating at an intensity 1.5-2 times greater than the average value. Observations show that protruberances are radiated at 3.2 and 10cm and that in addition there are sites of increased radiation with an effective temperature of 100,000 and 400,000°K at 3.2 and 10 cm respectively and measuring 1'--2'. The article contains also many methodical indications on the performance of observations in the centimeter range.

During the discussions, A.P. Molchanov, in the name of a group of his associates at the Leningrad University, reported observations made by him on radio waves from the sun at 3.2 cm during the 1952 and 1954 eclipses. He concludes from these results that an increase in brightness is observed at 3.2 cm at the edge of the solar disk. Bibliography, 14 titles.

Card : 2/2

112-1-2188

Translation from: Referativnyy Zhurnal, Elektrotehnika, 1957,  
Nr 1, p. 325 (USSR)

AUTHORS: Troitskiy, V.S., Rakhlin, V.L.

TITLE: Absolute Microwattmeter for a 3.2-cm Wave and its Application in Radio-astronomy and Engineering (Absolyutnyy mikrovattmetr na volnu 3.2 cm i yego primeneniye v radioastronomii i tekhnike)

PERIODICAL: Uch. zapiski Gor'kovsk. un-t, 1956, 30, pp.83-91.

ABSTRACT: In the described wattmeter the measured power is compared by the zero method with a standard power; as such the radio emission of a heated matched absorber placed inside a waveguide is used. Its radio-emissive capacity is determined by its absolute temperature. The systematic error in measuring the power of a sinusoidal signal does not exceed ±7 per cent. In measuring noise capacity with a smooth

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112-1-2183

Absolute Microwattmeter for a 3.2-cm Wave (Cont.)

spectrum, the error is reduced to  $\pm$  per cent, because in that case the transmission band does not enter into the wattmeter's constant. The heating up of the sample and obtaining a wide transmission band involve difficulties. In the described wattmeter the sample was heated up to 200° which added about  $3 \cdot 10^{-14}$  watt to the standard capacity. Powers up to  $10^{-11}$  watt can be measured by the zero method with an accuracy of  $\pm 10$  per cent; in this method a matched absorber having regular room temperature instead of the standard, is connected at the input.

The instrument is first of all calibrated according to the difference of capacities of the cold and hot standards after which the gain in it is reduced for a determined number of times. The lowest capacity which can be measured with the wattmeter is determined from the level of its own noises, causing a chaotic movement of the output device's indicator; this capacity amounts to  $10^{-16}$  watts for the instrument being described. In measuring capacities over  $10^{-13}$  w, its fluctuation error does not exceed 0.1 per cent. Also, other possible sources of error are investigated, as well as measures for their prevention. In the described wattmeter these additional errors are reduced so much that it can be used for

Card 2/3

112-1-2188

Absolute Microwattmeter for a 3.2-cm Wave (Cont.)

measuring capacities of the order of  $10^{-15}$  w with an accuracy of  $\pm 10$  per cent. The wattmeter is designed for measuring capacities of a monochromatic signal with a 9375 Mc frequency or a signal with a continuous spectrum in a band of about 10 Mc around the same frequency, and also an average pulse power with a pulse frequency band not exceeding 5 Mc, and pulse capacity not above  $10^{-11}$  watt. Utilizing standard horns one can apply the device for precision measurements of field strength. The more important fields of application of the wattmeter are measurements of radio emission of cosmic bodies and of noise of various types of electronic devices. Bibliography: 7 titles.

Card 3/3

A.S.B.

05477

SOV/141-2-2-2/22

AUTHORS: Tu-Leng-yao, Malakhov, A.N., Plechkov, V.M. Razin, V.A.  
Rakhlin, V.L. Stankevich, K.S. Strezhneva, K.M.  
T'ang Shou-p'o, Troitskiy, V.S. Khrulev, V.V. and  
Tseytlin, N.M.

TITLE: Observations of the Annular Solar Eclipse of April 19, 1958  
on Wavelengths of 1.63, 3.2 and 10 cm

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,  
1959, Vol 2, Nr 2, pp 154 - 158 (USSR)

ABSTRACT: The report of a joint Soviet-Chinese expedition to  
Ling-sui ( $\phi = 18^{\circ}30'32''$ ,  $l = 110^{\circ}01'12''$ ) on the island  
of Hai-nan. The aerials used parabolic reflectors of  
diameters 1 m at the shorter wavelengths and 1.5 m at  
the longest. The fluctuations in the threshold of sensi-  
tivity were similarly  $4^{\circ}$ ,  $5^{\circ}$  and  $4^{\circ}$ . The electrical axes  
of the aerials were parallel to one another. The absolute  
accuracy of intensity measurement was  $\pm 15\%$  at the longer  
wavelengths and  $\pm 20\%$  at the shortest. The relative  
accuracy, assuming an averaging period of 1 min, was 2-3%.  
The results are shown in Figure 1 as measurements of  
effective temperature expressed as a percentage of the

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SOV/141-2-2-2/22

Observations of the Annular Solar Eclipse of April 19, 1959, on  
Wavelengths of 1.63, 3.2 and 10 cm

temperature of the uneclipsed sun. The values of the latter were 9 000 °K (1.63 cm), 21 000 °K (3.2 cm), 100 000 °K (10 cm). The vertical lines on the diagram represent the instants of disc "contact" (4 in number) and the occultation of certain well-known spots Nrs 188 and 186. A number of peculiarities may be noted. Between 2<sup>h</sup> 0.3<sup>m</sup> and 2<sup>h</sup> 15<sup>m</sup> and between 3<sup>h</sup> 47<sup>m</sup> and 3<sup>h</sup> 58<sup>m</sup> there is an increase in intensity over what might be expected. Figure 2 shows a synoptic chart of the sun. If the Nr 188 group of 4 spots measures 3' x 1' the effective temperature (5.10 °K at 1.63 cm) and height 0.04 R at 10 cm) may be estimated. The curves for 3.2 cm and 10 cm in Figure 1 are asymmetrical. This may be explained as due to a wedge-shaped equatorial region which increases in brightness towards the eastern limb of the sun. The longer wavelength curves also show a small "hump" in the trough. This is due to "limb brightening" and it is possible to estimate its amount - e.g. at the

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SOV/141-2-2-2/22  
Observations of the Annular Solar Eclipse of April 19, 1959, on  
Wavelengths of 1.63, 5.2 and 10 cm

shortest wavelength the annulus contributes 4.5% of the intensity of the uneclipsed sun. The effective radius of the "radio-sun" is also estimated as about 4% (depending on wavelength) greater than the optical radius. The deduced values of various constants are in Table 1. The AS P.R. of China are thanked as we also Chuang Lihsin, Hsu yuan, Li Chi-wen. The Ac.Sc.USSR are thanked, also A.P. Molchanov, B.M. Budkin, P.P. Lugovenko and A.A. Mel'nikov. There are 2 figures, 1 table and 2 Soviet references.

ASSOCIATION: Issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radiophysics Research Institute of Gor'kiy University)

SUBMITTED: December 9, 1958

Card 5/3

EMTIRENKO, D.A.; KAMENSKAYA, S.A.; RAKHIM, V.I.

Measurements of lunar radio emission at a wavelength of 1.6 cm.  
Izv. vys. ucheb. zav.; radiofiz. 7 no.3:555-556 '64. (MIFI A 17:11)

I. Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom  
universitete,

L 8895-65 AEDC(a) GW/WS FBD/EMT(1)/ENG(x)/EEC-L/EEC(t) Fo-4/Po-5/P1-4/Po -2 EBD(t)/66E/-  
ACCESSION NR: AP4044110 S/0141/64/007/003/0555/0556 B  
AUTHOR: Dmitrenko, D. A.; Kamenskaya, S. A.; Rakhlin, V. L.  
TITLE: The results of measuring radio emission from the Moon at  
 $\lambda = 1.6 \text{ cm}$   
SOURCE: IVUZ. Radiofizika, v. 7, no. 3, 1964, 555-556  
TOPIC TAGS: lunar temperature, lunar radiation, lunar phase, artificial Moon, modulation radiometer,  
ABSTRACT: A parametric amplifier was used to measure modulation radiometer. In the autumn of 1962 in the Crimea at  $\lambda = 1.6 \text{ cm}$  the lunar phase with an input T = 16 sec. The antenna system consisted of a parabolic reflector with a diameter of 1.5 m in diameter and an exciter for the reception of horizontally polarized waves. The width of the beam at the 3-db level. To compensate for the background signal, the second input of the radiometer was connected to a horn radiator.  
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ACCESSION NR: AP4044110

directed toward the zenith. The radio emission of the Moon was compared to that of the black standard disc located in the Fraunhofer region of the antenna at an elevation of 19 degrees and distance from the telescope of 142.4 m. The diameter of the black standard disc was selected in such a way that its angular dimensions were close to the average angular dimension of the Moon. The results of measurements obtained during two lunations show that the phase relationships of lunar radio emission temperature is sufficiently well approximated by the expressions  $T = 207^\circ + 33^\circ \cos(\Omega t - 8^\circ)$  for the period 2 September—2 October 1962, and  $T = 207^\circ + 34^\circ \cos(\Omega t - 18^\circ)$  for the period 2 October — 2 November 1962. The error in the variable component was  $\pm 4\%$ . The error in determining the constant component did not exceed  $\pm 3\%$ . The error in determining the phase was 10 to 20 degrees. Orig. art. has 1 formula.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut,  
Gor'kovskiy gosudarstvennyy universitet (Scientific Research Institute  
of Radiophysics, Gor'kiy State University)

Card 2/3

L 8895-65  
ACCESSION NR: AP4044110

SUBMITTED: 21Dec63

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Card 3/3

SU SHI-VEN'; SYAO GUAN-TSZYA [Hsiao Kuang-chia]; U KHUAY-VEY; TUN-VU;  
U TSZIN'-TSI [Wu Chin-ch'i]; TROITSKIY, V.S.; RAKHLIN, V.L.;  
STREZINEVA, K.M.; ZELINSKAYA, M.R.

Observation of the solar eclipse of February 15, 1961 on the 3.2 cm.  
wavelength. Izv. vys. ucheb. zav.; radiofiz. 5 no.4:807-810 '62.  
(MIRA 16:7)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri  
Gor'kovskom universitete.  
(Eclipses, Solar) (Radio astronomy)

IVANOV, N.S.; RAKHLIN, Ye.D.

Formation of mercury rectifiers with transformers fed from the system. Elek. i tepl. tiaga 4 no. 12:9-10 D '60. (MIRA 14:1)

1. Zamestitel' nachal'nika Tul'skogo uchastka energosnabzheniya (for Ivanov). 2. Starshiy inzhener Tul'skogo uchastka energosnabzheniya (for Rakhlin).

(Electric railroads--Substations)

RAKHLIN, Ye.D., inzh.

Useful device. Elek. i tepl. tiaga 5 no.8:21 Ag '61.  
(MIRA 14:9)  
(Electric railroads--Wires and wiring)

VITS, Yuriy Izrailevich; RAKHLINA, D.B., redaktor; ZABRODINA, A.A.,  
tekhnicheskiy redaktor

[Pressing of electric insulator parts] Pressovanie elektroizolo-  
vaniykh detalei. Moskva, Gos.energ. izd-vo, 1955. 143 p.  
(Electric insulators and insulation) (MIRA 9:2)

BOGOSLOVSKIY, B.M.; RAKHLINA, P.I.

Investigating the synthesis of moth-killing preparations. Izv.  
vys. ucheb. zav.; tekhn. tekst. prom. no. 3:118-121 '58. (MIRA 11:?)

1. Moskovskiy tekstil'nyy institut.  
(Mothproofing)

RAKHLINA, I. I.

36415 Streptokokkovaya perikrestnaya infektsiya na skarlatinnnykh ostoleniyakh.  
Voprosy pediatrii i okhrany materninstva i detstva, 1949, vyp. 6, s. 25-27

RAKHLINA, I. I., KURINOVA, O. M., I MIGDALOVICH, F. A.

SO: 'Letopis' Zhurnal'nykh Statey, No. N, 1949

80

30

**Chloroprene polymers. II. Determination of the unsaturation of chloroprene polymers.** A. L. Kleshanski and M. Rakhлина. *J. Gen. Chem. (U. S. S. R.)* 7, 1299 (1935) [1937]; *ibid.* C., A., 31, 2468. In the detn. of the unsat. of chloroprene rubber, the I nos. can be detd. close to the theoretical values by modified Weiss method of treating a sample with 140% excess of ICl in CCl<sub>4</sub> for 1 hr. Since in the detn. of I values the chloroiodide of chloroprene polymer is not hydrolyzed, the acidity formed under the conditions of this method of detn. is caused by the substitution reaction, and should be deducted from the I values. Because of the variability of chloroprene and its sensitivity to atm. O<sub>2</sub>, it is not always possible to obtain consistent values for polymers of different origins.  
Chas. Blaw

A.I.E.E. METALLURGICAL LITERATURE CLASSIFICATION

*CW*

Chlorination of polymers of chloroprene rubber. A. L. Klibanski and M. Rakhlina. *Og. Chem. Ind.* (U. S. S. R.) 2, 392-4 (1936).—The addn. reaction of 2 Cl atoms at the double bond of chloroprene polymers was studied. Pouring *N* CHCl<sub>3</sub> soln. of *n*-chloroprene polymer (1) (17.32% polymerization) into the corresponding vol. of *N* Cl in CHCl<sub>3</sub> at 0° and allowing the mixt. to stand in the dark at room temp. for 46 hrs. resulted in the formation of a pale yellow, pulverulent product contg. 62.8% Cl (calcd. 66.2% for the dichloride addn. product). Treating 0.1 N I with 2 *N* Cl in CHCl<sub>3</sub> gave a product with 70.1% Cl (calcd. 72% for the product formed by addn. of 2 Cl and substitution of 1 H). It follows that the chloride is a mixt. of addn. and substitution products. A 2.4-g. sample of *n*-chloroprene polymer (100% polymerization) suspended in CHCl<sub>3</sub> for 3 days to obtain 0.1 *N* concn. when treated with 2 *N* Cl in CHCl<sub>3</sub> for 5 days until nearly dissolved gave an addn. product contg. 67.5% Cl (calcd. 69.8% for the dichloride and 72% Cl for the trichloride). Polymer similarly treated with Cl was unchanged. All the chlorinated chloroprene polymers contain saponifiable Cl, decompose on heating without melting, and give films resistant to concd. HNO<sub>3</sub>, HCl + HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> at moderate temps.

Chas. Blane

RAKHLINA, R. M.

Rakhлина, Р. М. - "The effect of antireticular cytotoxic serum on bile exchange,"  
Trudy Krymsk, med. in-ta im. Stalina, Vol. XII, 1948, p. 47-52

SO: U-3950, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

RATNER, S. G.

Pneumothorax

Application of pneumoperitoneum in the treatment  
of various forms of tuberculosis in children.  
Vop. pediat. i okhr. mat. i det. 20 no. 3, 1952

Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

Golubkin, G. N.

Tuberculosis

Application of pneumoperitoneum in the treatment  
of various forms of tuberculosis in children.

Vop. pediat. i okhr. mat. i det. 20, No. 3, 1952

Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

RACHMAN, S. G.

Children - Diseases

Application of pneumoperitoneum in the treatment of various forms of tuberculosis in children. Vop. pediatr. i okhr. mat. i det. 20 No. 3, 1952

Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

RAKHLINA, S.S., starshiy nauchnyy sotrudnik; STRUNINA, Z.A., mladshiy  
nauchnyy sotrudnik; KOZLOVA, L.P., mladshiy nauchnyy sotrudnik

Ways of increasing the light-fastness of fabrics dyed with  
indigosol and vatsol dyes. Tekst.prom. 22 no.2:56-59 F '62.  
(MIRA 15:3)

1. TSentral'nyy nauchno-issledovatel'skiy institut khlopcatobu-  
mazhnay promyshlennosti.  
(Dyes and dyeing)

RAKHLINA, S.S.; KOZLOVA, L.P.; STRUMINA, Z.A.

Light-fast dyeing of shirting in khaki. Nauch.-issl. trudy  
TSNIIKHBI '60 [publ. '62]:163-169. (MIRA 18:2)

RAKHLINA, S. S.; STAUWINA, Z. A.

Dyes and Dyeing

Dyeing cotton and staple fiber with cold dyes.

Tekst. prom. 12, No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

AKHLLINA, D. V. : STRUNINA, N. N.

Dyes and Dyeing

Dyeing cotton and staple fiber with cold dyes. Tekst. prom., 12, No. 7, 1952.

Monthly List of Russian Accessions. Library of Congress, October, 1952, Unclassified.

SOKOLOV, G.V., inzh.; LABUZOVA, Z.I.; GENKINA, M.L.; RAKHLINA, S.S., kand.tekhn.nauk; SHATROVA, Ye.S., kolorist 1-y kategorii; TALANINA, A.S., kolorist 1-y kategorii; TANVEL', A.Ya., kand.tekhn.nauk

"Processing of artificial fibers" Translation from the English by D.I.Venediktova, K.K.Lupandina. Book review by G.V.Sokolov and others. Tekst.prom. 19 no.2:71-73 F '59. (MIRA 12:5)

(United States--Textile fibers, Synthetic) (Technology--Translating)  
(Venediktova, D.I.) (Lupandina, K.K.)

RAKHLINA, S.S., kandidat tekhnicheskikh nauk.

Problem of finishing cloth made of staple fiber. Tekst.prom.  
14 no.6:44-47 Je '54. (MLRA 7:?)  
(Textile finishing) (Rayon)

VETUKHNOVSKIY, Z.B.; DARAZHIO, G.N.; RAKHILINA, Z.V.

New methods and instruments for testing paint coatings and materials.  
Lakokras.mat.i ikh prim. no.1:79-83 '61. (MIRA 14:4)  
(Paint materials—Testing)

VETUKHNOVSKIY, Z.B.; DARAZHIO, G.N.; RAKHLINA, Z.V.

Improved methods for treating the surface of metals prior to  
coloring. Lekokras. mat. i tekhn. prim. no. 6:78-83 '60.  
(MIRA 13:12)  
(Metals--Finishing)

DUBROVA, B.M.; BURENKOVA, N.V.; VETUKHNOVSKIY, Z.B.; DARAZHIO, G.N.;  
RAKHLINA, Z.V.

Foreign science and technology. Lakokras. mat. i ikh prim.  
no.5:81-86 '63. (MIRA 16:11)

VEZUHNOSTIY, Z.E., DARAZHIC, G.N., RAKHLINA, Z.V.

New methods and devices for testing protective coatings.  
Lekokras.mat. i ikh prim. no.2;84-87 '64. (MIRA 17:4)

VETUKHNOVSKIY, Z.B.; DAKAZHIO, G.N.; RAKHLINA, Z.V.

Equipment for painting articles by the flow coating method.  
Lakokras.mat. i ikh prim. no.2:81-88 '60. (MIRA 14:4)  
(Painting, Industrial—Equipment and supplies)

S/081/61/000/021/087/094  
B107/B147

AUTHORS: Vetukhnovskiy, Z. B., Darazhio, G. N., Rakhлина, З. В.

TITLE: New methods and devices for testing varnish coatings and materials (Survey of foreign publications)

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 460, abstract 21P143 (Lakokrasochn. materialy i ikh primeneniye, no. 1, 1961, 79-83)

TEXT: This is a brief description of new methods and devices for testing varnish ~~coatings~~ and materials basing on a survey of foreign publications. 9 references. [Abstracter's note: Complete translation.] ✓

Card 1/1

VETUKHNOVSKIY, Z.B.; DARAZHIO, G.N.; RAKHILINA, Z.V.

Improvement of painting equipment and painting methods; review  
of foreign literature. Lakokras.mat.i ikh prim. no.3:87-93 '62.  
(MIRA 15:7)

(Paint machinery) (Painting, Industrial)

VETUKHNOVSKIY, Z.B.; DARAZHIO, G.N.; RAKHLINA, Z.V.

Improved painting equipment and methods; review of foreign literature. Lakokras. mat. i ikh prim. no.6:81-86 '61.  
(MIRA 15:3)

(Painting, Industrial--Equipment and supplies)

VETUKHNOVSKIY, Z.B.; DARAZHIO, G.N.; RAKHLINA, Z.V.

Modernization of industrial painting equipment and methods of  
painting. Lakokras.mat. i ikh prim. no.2:77-86 '61.

(MIRA 14:4)

(Painting, Industrial—Equipment and supplies)

VETUKHNOVSKIY, Z.B.; DARAZHIO, G.N.; RAKHLIMA, Z.V.

Improvement of painting methods and new types of industrial painting equipment. (survey of foreign literature). Lakokras.-mat. i ikh prim. no.5:82-92 '60. (MIRA 13:11)  
(Painting, Industrial—Equipment and supplies)

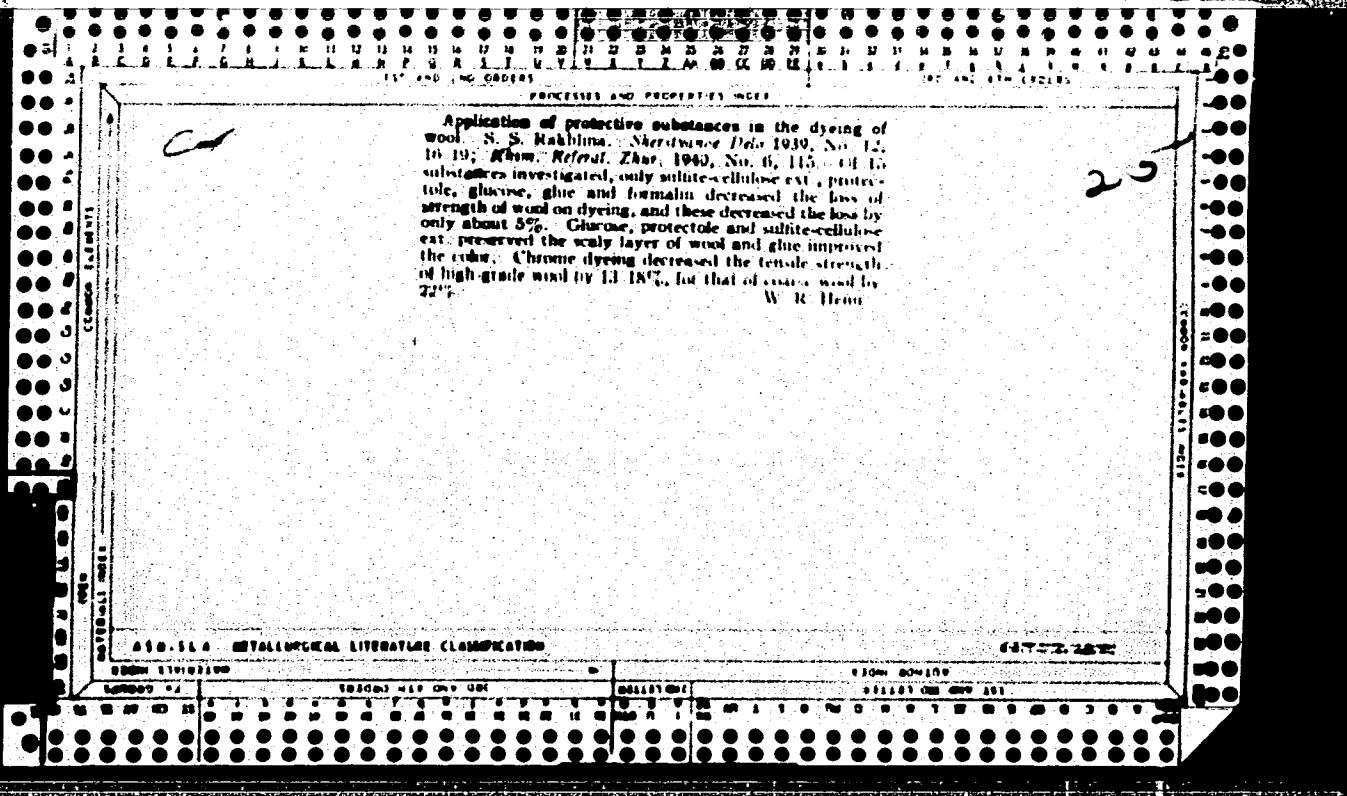
RAKHLIS, I., starshiy inzhener mekhanizatsii; ROITTENBURD, A., inzhener  
mekhanizatsii (Odesskiy port).

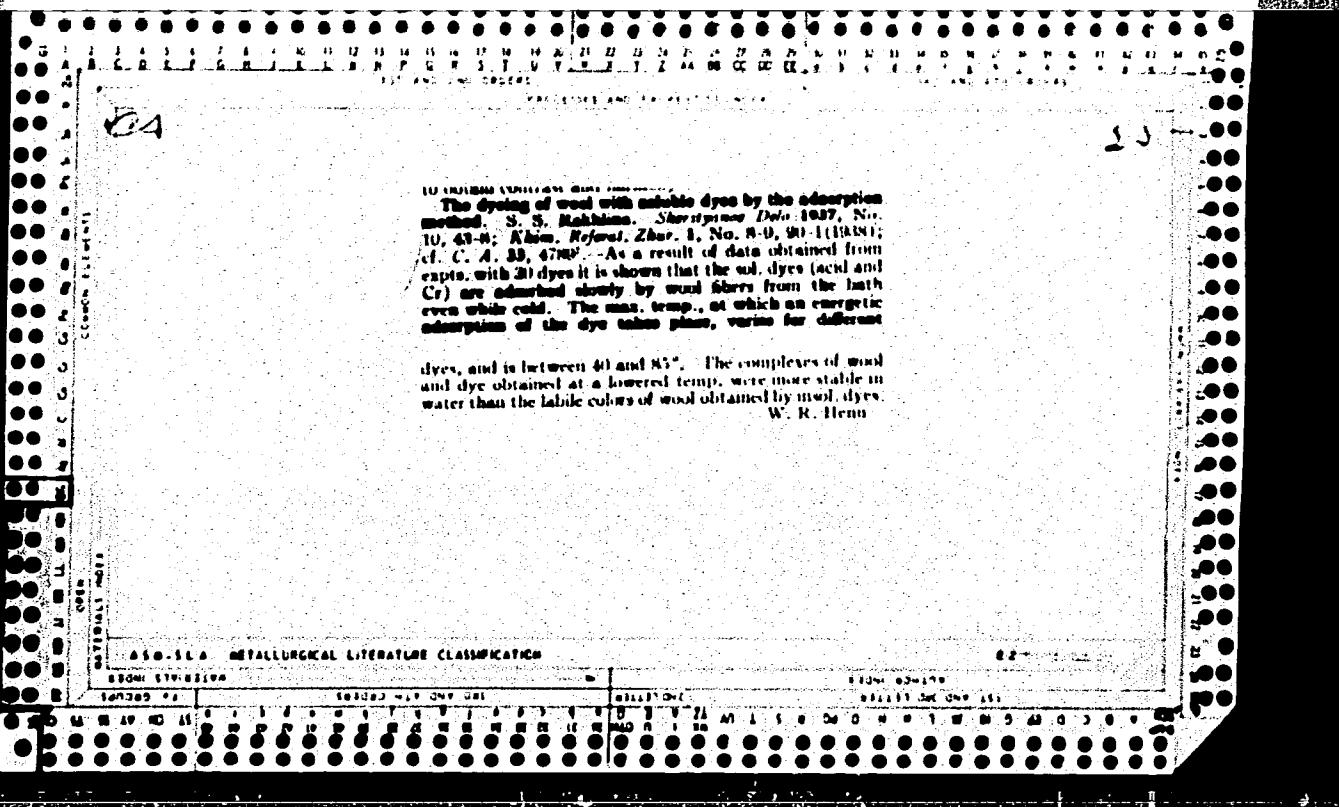
Overall mechanization of unloading soybeans from tanker vessels.  
Mor.flot 16 no.3:6-10 Mr '56. (MLRA 9:7)  
(Soybeans--Transportation) (Cargo handling)

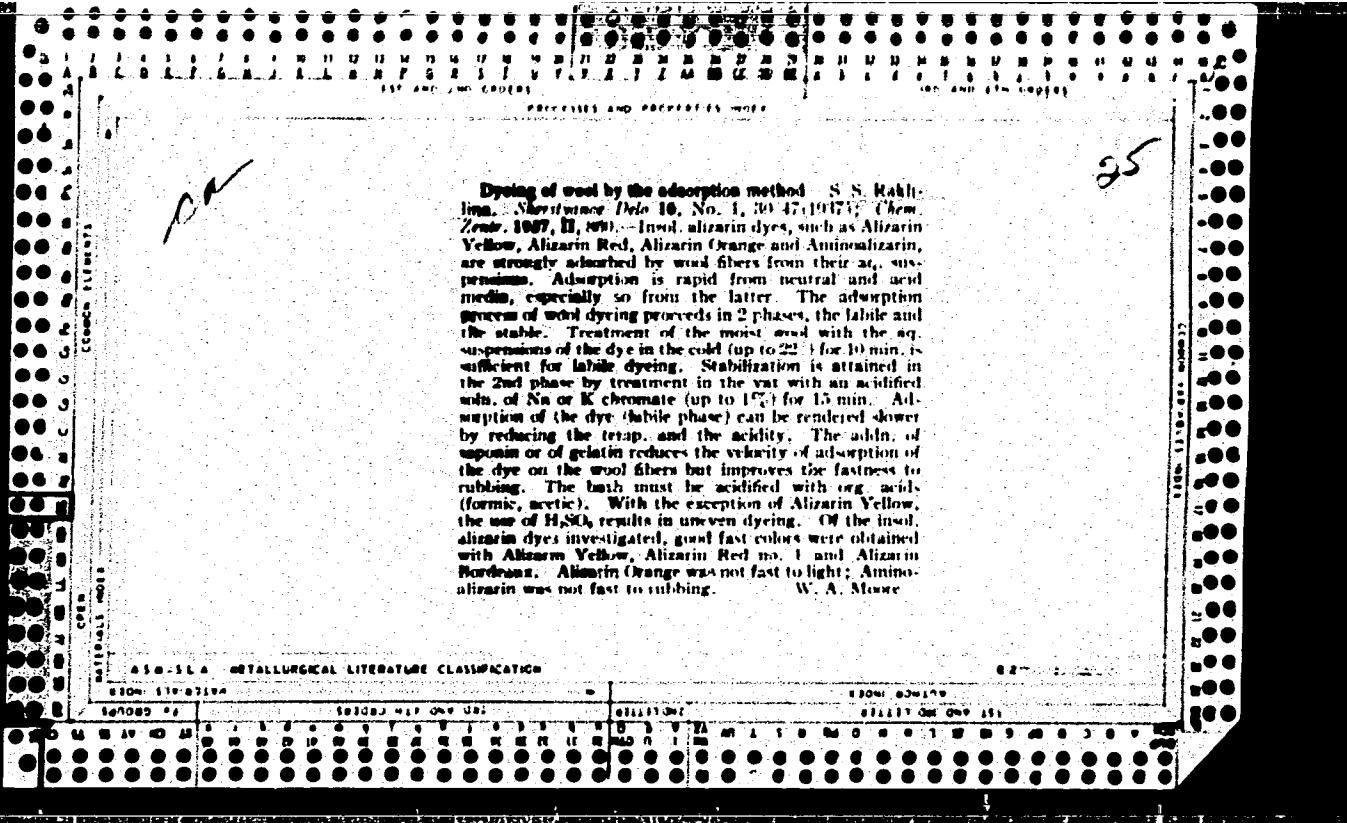
CA

25

**Rationalization of cold dyeing.** L. I. Belen'kil, S. S. Rakhlin, and M. E. Kazanskaya. *Tekhn. Prom.* 1969, No. 12, 23-8.—An account is given of analytical methods for the control of azoic dyeing. The concn. of "azotol" coupling (Naphthol) solns. is detd. by ultraviolet absorption spectrophotometry; Naphthols on the fabric are converted into insol. pigments which are detd. colorimetrically; diazo salts are estd. colorimetrically after coupling with Naphthols in the presence of a protective colloid forming a colored sol. at pH 12; free alkali in Naphthol soln. is estd. conductimetrically; pH and buffering are controlled by the glass electrode and potentiometric titration, resp. B. A.







25

*Fixing of dyes by fiber D.T.M. S. S. Bobkina.*  
*Tekstil. Prom. 1969, No. 3, 29-32.*—The dye-fixing action of  
the Cu derivative of the acetate of dicyanodiamide-CH<sub>3</sub>O

condensate (cf. Klyucharev, C.I. 43, 3620g) with S dyes on  
cotton is studied. Good wash- and light-fastness is pro-  
duced.  
B. A.

*K*  
**Mechanism of combination of copper and chromium with the sulfur dye Khaki 59.** S. S. Rakhlina and M. E. Kazanskaya. *Tekstil. Prom.*, 6, No. 7/8, 32-4 (1946). The purpose of this investigation was to ascertain the optimum conditions for combining Cu and Cr with the S dye Khaki 59. The investigation was carried out with raw (unbleached) and bleached, undyed and dyed cotton fabric (moleskin). Temp., 40-100°, did not affect the quantity of Cu (0.04%) combined with bleached undyed

fabric. The quantity of Cu combined with dyed fabric increased up to 80% (40°/0.16, 60°/0.22, and 80°/0.31%), and then changed slightly at 100°/0.32%. The quantity of Cr combined with dyed fabric rose from 0.10% at 40° to 0.40% at 100°. The duration of treatment had very little effect on the quantity of Cu combined with bleached dyed fabric. After 1 min, the quantity of Cu combined was 0.32%, after 3 min, it was 0.34%, and after 30 min, it remained 0.31%. Cr combined more slowly; it increased rapidly in the first 10 min. (from 0.17 to 0.20%) and then rose more slowly, after 15 min., 0.28%; after 30 min., 0.31% (and of test, limit not reached). The combination of Cr was favored by an acid medium. Cu combined in greater quantities the closer the pH of the bath approached neutral. AcOH usually used in the mordant bath was effectively replaced by  $H_2SO_4$ . More Cu or Cr combined with dyed fabric than with undyed (0.54% for Cr and 0.29% for 0.02% of Cr).

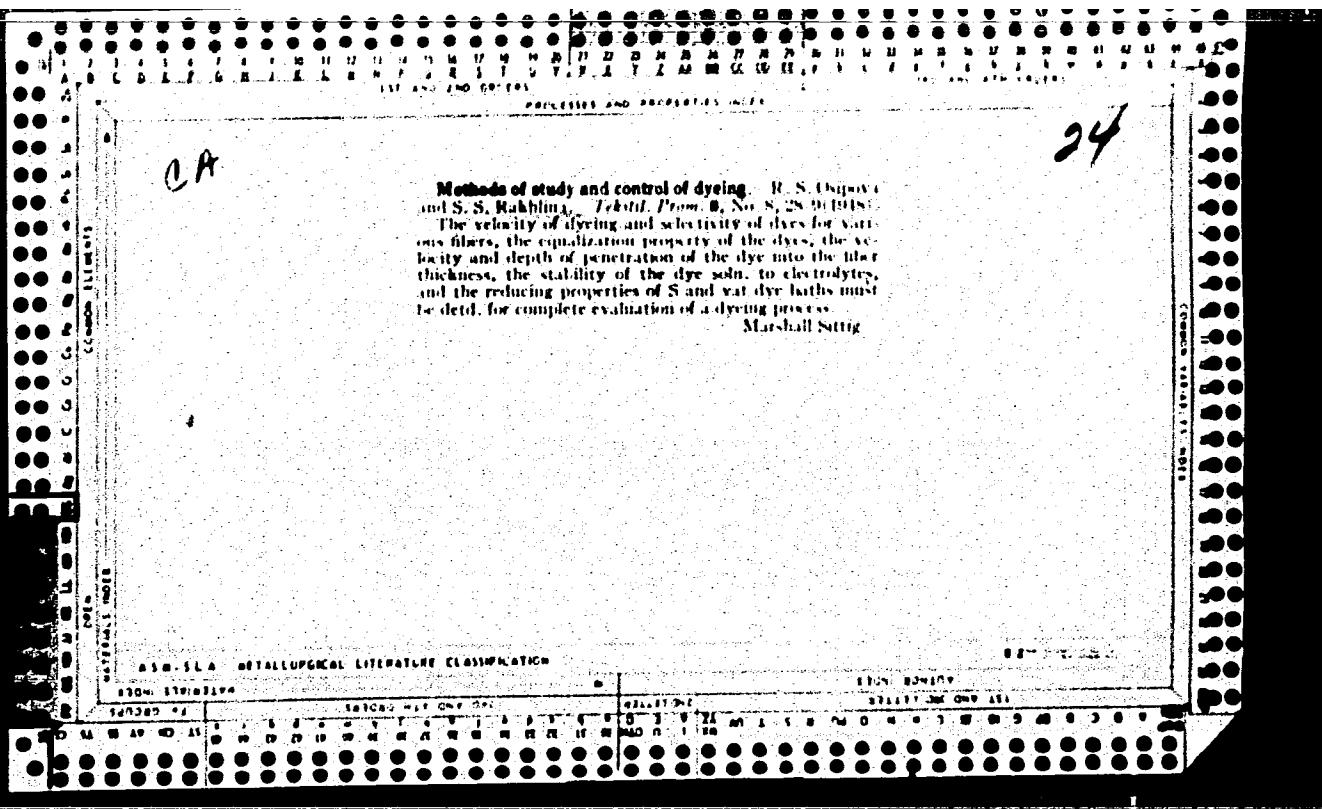
Also more metal combined with raw than with bleached moleskin (cf. C.I. 35, 36183). Expts. were further carried out on the quantity of metal combined with fabrics dyed in various concns. of the dye (1-30%). The quantity of metal remaining on the fabric increased as the concn. of the dye in which the fabric was dyed increased (Cu from 0.005 to 0.40% and Cr from 0.07 to 0.12%). Varying the concn. of the mordanting salt (1.29 g./l.) did not affect the quantity of metal on the fabric. Cu and Cr were absorbed from their bath, replacing one another. Which of the metals was absorbed preferentially was determined by conditions favoring one or the other. This is taken to indicate that they occupy the same position in the dye mol. Cu or Cr absorbed by a fabric were washed out most easily from an undyed raw fabric, and hardest from a dyed fabric. Cu and Cr combine with the dye to form complexes. On undyed raw fabrics they combine less tenaciously with the impurities in the cellulose. The weakest combination they form with cellulose as is seen from the behavior of these metals on undyed bleached moleskin. — M. Hirsch

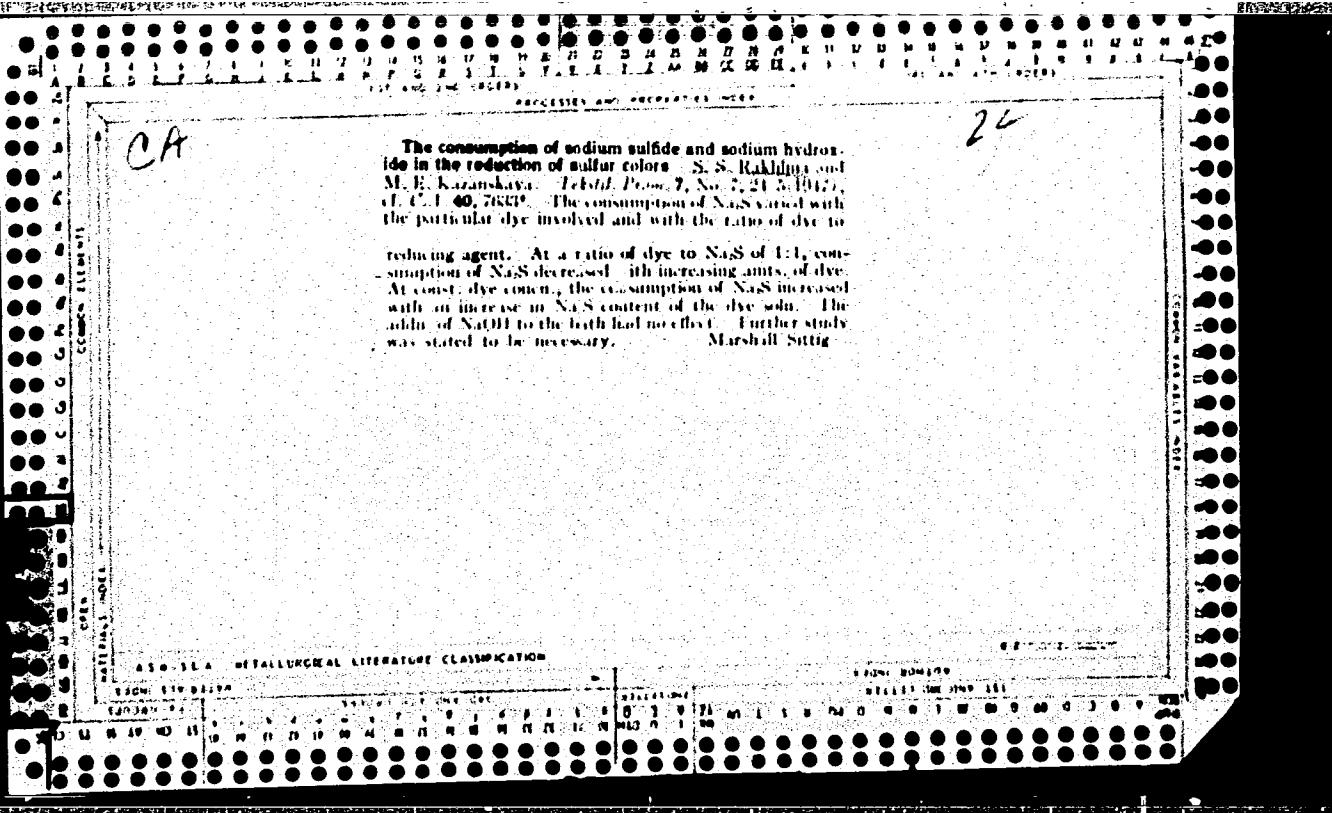
25

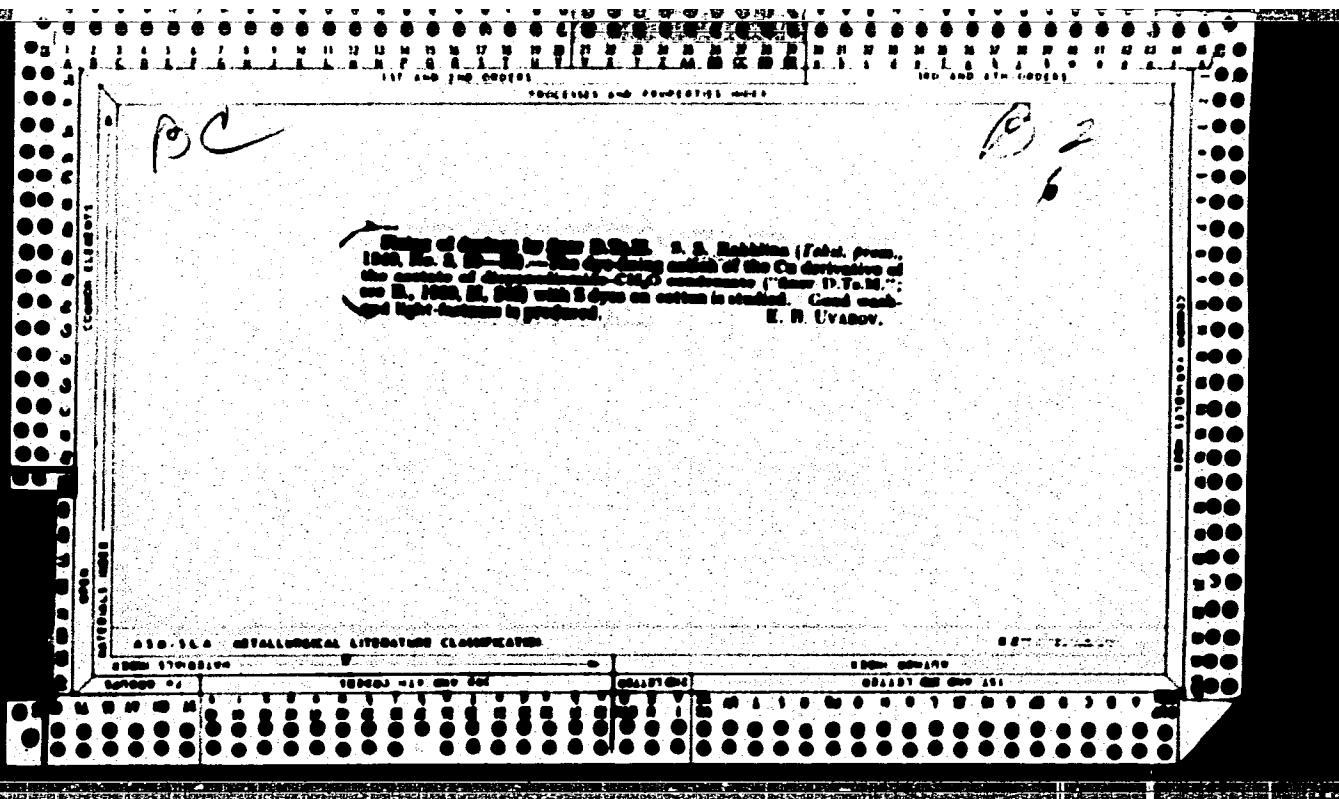
**ASD-T-1A METALLURGICAL LITERATURE CLASSIFICATION**

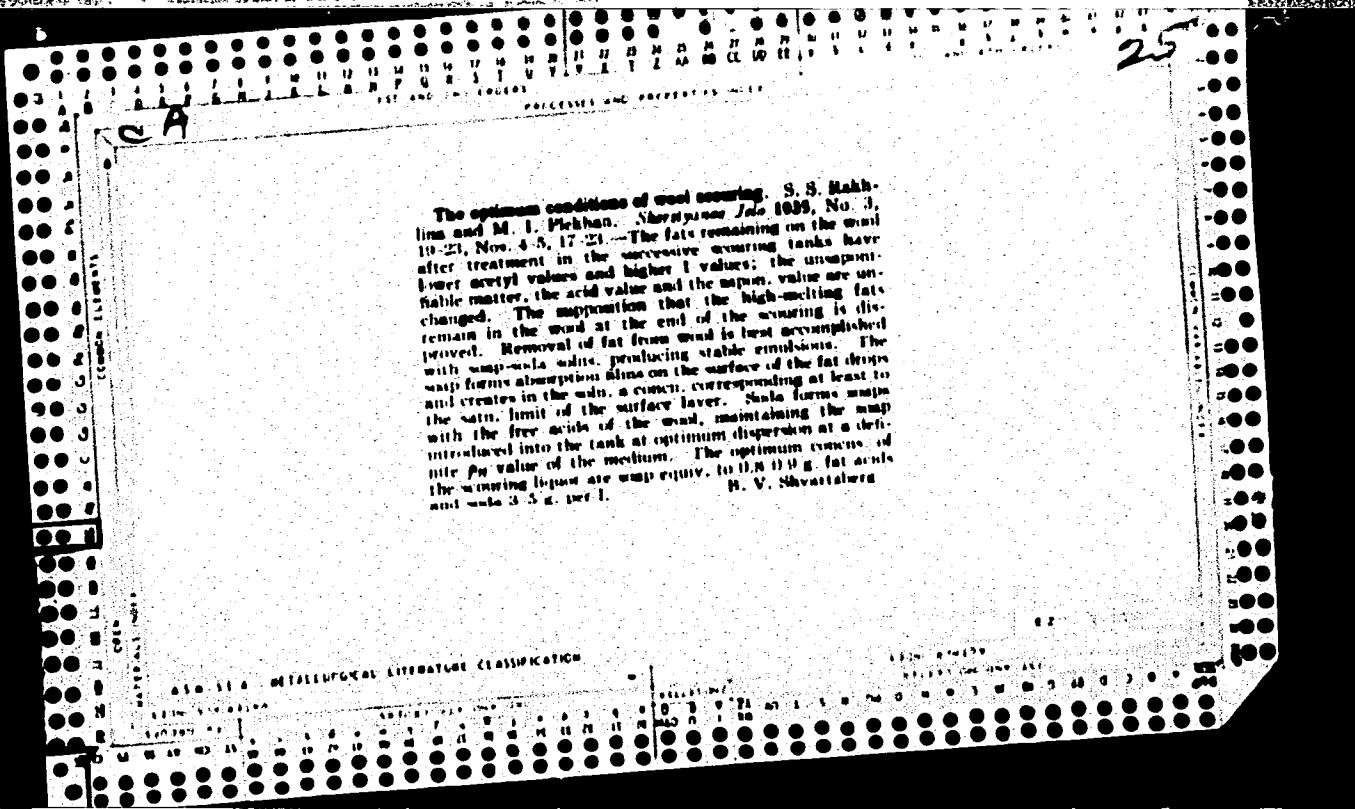
ASD-T-1A METALLURGICAL LITERATURE CLASSIFICATION	SEARCHED	SERIALIZED	INDEXED	FILED	SEARCHED		SERIALIZED		INDEXED		FILED	
					SEARCHED	SERIALIZED	INDEXED	FILED	SEARCHED	SERIALIZED	INDEXED	FILED
COMBINATION OF METALS												

The substitution of products of domestic (Russian) origin for tragacanth and tannin. S. S. Rakhlina and G. I. German. "Shershtnik v Dole" 19, No. 1, 13-17 (1960); "Chem. Zeits.", 1960, II, 1040. On the basis of lab. and plant tests it was shown that Na alginate could be used under certain conditions instead of imported tragacanth for the prep. of printing inks with basic dyes in combination with devitrim, larch resin, soi, and insol starch. Such necessary conditions are: (a) in an HOAc medium (absolutely no alc. or mineral acid can be present), (b) with the addn. of ammonium oxalate to the printing ink in which the Skimpe ext. has previously been dissolved, (c) with the ink mixed in such a manner that the Na alginate is added last. By use of the process of the Leningrad Kyrof Textile Institute a purified tannin contg. 92% tannides was obtained from the Skimpe ext. which could entirely replace the imported tannin. M. G. Moore









LYCHKOVSKIY, G., inzh.; RAKHLIS, I.

Design of storage battery operated loaders and the problem of the over-all mechanization of loading and unloading operations. Mor. flot 23 no.3:15-16 Mr '63. (MIRA 16:3)

1. Nachal'nik pogruzochno-razgruzochnogo rayona Odesskogo porta (for Lychkovskiy). 2. Starshiy inzh. otdela mekhanizatsii Odesskogo porta (for Rahklis).

(Loading and unloading—Equipment and supplies)

YEROFEYEV, N., dots.; LEDOVSKIKH, I.; RAKHLIS, I., inzh.

Automatic recording of crane performances by means of a cyclograph.  
Mor. flot 20 no.11:10-13 N '60. (MIRA 13:11)

1. Odesskoye vyssheye inzhenernoye morskoye uchilishche (for Yerofeyev).
2. Starshiy inzhener po mekhanizatsii 2-go rayona Odesskogo porta (for Ledovskikh). 3. Otdel mekhanizatsii Odesskogo porta (for Rakhlis).  
(Cranes, derricks, etc.)  
(Recording instruments)

RAKHLIS, Il'ya Mikhaylovich; ROMANOVSKIY, Fedor Dmitriyevich; TURETSKIY,  
Vladimir Solomonovich; MARCHUKOVA, M.G., red.; LAVRENOVA, N.B.,  
tekhn. red.

[Over-all mechanization of loading and unloading operations;  
practices of the Odessa Port] Kompleksnaia mekhanizatsiia po-  
gruzochno-razgruzochnykh rabot; opyt Odesskogo porta. Moskva,  
Izd-vo "Morskoi transport," 1961. 112 p. (MIRA 15:1)  
(Loading and unloading) (Odessa--Harbor)

118-58-6-11/21

AUTHOR: Rakhlis, I.M. and Turetskiy, V.S., Engineers

TITLE: The Introduction of Complex Mechanization in Sea Ports (O vnedrenii kompleksnoy mekhanizatsii v morskikh portakh)

PERIODICAL: Mekhanizatsiya trudoyemkikh i tyazhelykh rabot, 1958, Nr 6,  
pp 27-29 (USSR)

ABSTRACT:  
Transloading operations of bulk loads are accomplished with universal and caterpillar cranes, the S-153 coal loading machine, hopper loaders PSG and PTS, small bulldozers, dipping grabs, electromagnets and other means. For the transloading of piece goods are used KVZ-02 and -04 loaders, the 4,000-M and 4,001 automobile loaders with a hoisting capacity of 3 and 5 tons. Inside freight cars are applied special UPM-6 (hoisting capacity - 0.5 ton) and "4004" loaders. The Osipenkovskiy zavod ministerstva morskogo flota (the Osipenko Plant of the Mercantile Marine Ministry) is going to turn out new hold loaders for piece goods, which will have a hoisting capacity of 3 tons. The further development of piece good transloading operations, however, is hampered not only by the lack of efficient special and universal transloading machines for use in holds and inside freight cars, but also because the manufacturing plants ship

Card 1/2

The Introduction of Complex Mechanization in Sea Ports 118-58-11/21

piece goods unpacked or improperly packed, which makes the utilization of transloading machines impossible. The authors demand the introduction of special transportation trays and containers in the interest of safe transportation and trans-loading mechanization. Instructions should be worked out requiring the manufacturing enterprises to use correct packaging when shipping goods.

1. Cargo ships--Loading
2. Materials handling equipment--Applications

Card 2/2

LYCHKOVSKIY, G.L., inzh.; RAKHLIS, I.M., inzh.

Introduction of new equipment in Odessa harbor. Mekh.i avtom.proizv.  
17 no.7:14-17 J1 '63. (MIRA 16:8)  
(Odessa Harbor--Equipment and supplies)

RAKHLIS, I.M., inzh.; TURETSKIY, V.S., inzh.

Making use of over-all mechanization in seaports. Mekh. trud. rab.  
12 no. 6:27-29 Je '58. (MIRA 11:?)

(Harbors)  
(Loading and unloading)

RAKHLIS, L. (Alma-Ata)

In the Institute of Economics of the Academy of Sciences of the  
Kazakh S.S.R. Vop. ekon. no.12:167-169 D '59. (MIRA 12:12)

1.Uchenyy sekretar' Instituta ekonomiki AN KazSSR.  
(Kazakhstan--Economics--Study and teaching)

RAKHLIS, L.

In the economics Institute of the Academy of Sciences of the  
Kazakh S.S.R. Vop.ekon. no.4:160 Ap '57.  
(MLRA 10:5)  
(Kazakhstan--Industries)

RAKHLIS, L. (Alma-Ata)

In the Economics Institute of the Academy of Sciences of the Kazakh  
S.S.R. Vop. ekon. no.3:153 Mr '61. (MIRA 14:3)  
(Kazakhstan—Economic research)

TOLYBEKOV, S.Ye.; RAKHLIS, L.A.; ISAYEVA, M.G.

Kazakhstan's transition from a semifeastal colonial economy to a  
socialist one, bypassing the capitalist stage of development.  
Trudy Inst. ekon. AN Kazakh. SSR 5:3-88 '60. (MIRA 14:9)  
(Kazakhstan—Economic conditions)

KASIMOV, B.K., Kand. filosofskikh nauk; PAKHOMOV, N.A., kand. ekonom. nauk

Coordination of studies on methodological problems. Vestn. AN  
Kazakh. SSR 20 no.8:90-91 Ag '64.

(MIRA 17:11)

TOLYBEKOV, S.Ye.; RAKHLIS, L.A.

Economy of Kazakhstan on the road to the transition to communism. Izv.AN Kazakh.SSR.Ser.ekon.. filos.i prava no.2:3-13  
'59. (MIRA 13:4)

(Kazakhstan--Economic conditions)

TOLYBEKOV, S.Ye.; RAKHLIS, L.A.; ISAYEVA, M.G.

Characteristics of the transition of Kazakhstan to socialism  
omitting the capitalistic phase of development. Vest, AN  
Kazakh SSR 13 no.8:42-58 Ag '57. (MLRA 10:9)  
(Kazakhstan--Economic conditions)

RAKHLIS, M.L., mayor meditsinskoy sluzhby

Treating nocturnal enuresis with therapeutic hypnosis in the unit;  
abstract, Voen.-med.zhur. no.3:80 Mr '61. (MIRA 14:7)  
(URINE--INCONTINENCE) (HYPNOTISM--THERAPEUTIC USE)

ACC NR: AF6029946

SOURCE CODE: UR/0413/66/000/015/0111/0111

INVENTOR: Artemenko, I. A.; Voytovich, I. D.; Kan, Ya. S.; Rakhubovskiy, V. A.

ORG: none

TITLE: A counter based on cryotrons. Class 42, No. 184525 [announced by the Institute of Cybernetics, AN SSSR (Institut kibernetiki AN SSSR); Physicotechnical Institute, AN SSSR (Fizikotekhnicheskiy institut AN SSSR)]

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 111

TOPIC TAGS: pulse counter, cryogenic circuit

ABSTRACT: A cryotron pulse counter consisting of a control, memory, starting, and an input circuit is described. The memory circuit (see Fig. 1) contains two cryotrons

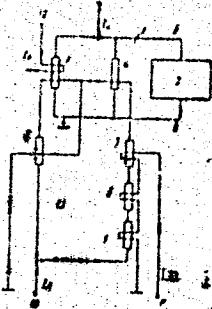


Fig. 1. A cryotron counter

1 - Memory circuit; 2 - cryotron generator; 3-8 - cryotrons; 9-12 - terminals; 13 - control circuit.

Card 1/2

UDC: 681.142.07

ACC NR: AP6029946

connected in parallel to the superconducting circuit containing the cryotron generator control coil and to the current source from the starter circuit. The control circuit has two parallel arms, each containing a control coil for the memory circuit cryotrons. One of these branches also includes a cryotron whose control coil is connected between a current source and the control circuit. The other branch consists of a group of cryotrons with a common control coil which serves as the counter input terminal. This arrangement achieves economy and assures that the counter is able to operate as an accumulator. Orig. art. has: 1 figure. [BD]

SUB CODE: 09/ SUBM DATE: 25Mar64/ ATD PRESS: 5070

Card 2/2

b)g

RAKEMACHEV, G.

"Repairing the heating element in an electric soldering tool"

So. Radio, Vol. 2, p. 51, 1952

OVCHINNIKOV, N.M.; AKOPYAN, A.T.; SMELOV, N.S.; RAKHMALEVICH, E.M.;  
BELYAYEVA, E.F.; ZERTSALOVA, G.N.; ZALKIN, N.M.; REZNIKOVA, L.S.;  
AVAKYAN, A.A.

Data on the etiology of pemphigus. Borgyogy. vener. szemle 36 no.5:  
193-200 S '60.

1. Az Orosz Szocialista Szovetsagi Koztarsasag Egeszsegugyi  
Miniszteriuma Kozponti Bor-Nemikortani Intezetenek (Igazgato:  
Turanov N.M., az orvostudomanyok kandidatusa es a Poliomyelitis-  
kutato Intezet (Igazgato: prof. Csumakov M.I., a Szovjet  
Tudomanyos Akademia levelező tagja) kozlemenye.  
(PEMPHIGUS etiol)

RAKHMALOVICH, Ye.M.; CHULKOVA, M.S.

Changes in carbonic anhydrase under the influence of measured amounts of muscular work as a method of functional diagnosis in respiratory and circulatory disorders. Klin. Med. (U.S.S.R.) 28, No.5, 74-81 '50.  
(CA 47 no.18:9488 '53) (MIRA 3:4)

AKOPYAN, A.T., RAKHMALEVICH, Ye.M., AVAKYAN, A.A., OVCHINNIKOV, N.M.,  
ZALKAN, P.M., IYEVLEVA, YE.A., IVANOVA, N.K., ZERTSALOVA, G.I.

Experimental data on the study of causative agent of pemphigus in  
the developing chick embryo [with summary in English]. Vest.derm.  
i.ven. 32 no.4:3-9 Jl-Ag '58 (MIRA 11:10)

1. Iz tsentral'nogo kozhno-venerologicheskogo instituta  
dir N.M. Turanov) i Instituta virusologii Akademii meditsinskikh  
nauk SSSR (dir. P.J. Kosyakov).  
(PEMPHIGUS, virus,  
culture in chick embryo (Rus))

RAKHMALOVICH, Ye.M.; TIUFILINA, O.V.

Studies on the effect of epilin on liver function in patients with  
mycoses of the scalp. Vest. derm. i ven. 34 no.7:32-34 '60.

(MIRA 13:12)

(LIVER) (SCALP--DISEASES) (HAIR, REMOVAL OF)

RAKIMALEVICH, Ye.M.; MEN'SHIKOVA, A.I.; PROSTOVA, I.P.

Functional conditions of the adrenal cortex related to ACTH therapy  
for certain skin diseases. Probl. endok. i gorm. 7 no.1:98-108  
'61. (MIRA 14:3)

(ACTH) (SKIN--DISEASES) (ADRENAL CORTEX)

ROZENTUL', M.A., prof.; STUDNITSIN, A.A., prof.; MASLOV, P.Ye., starshiy nauchnyy sotrudnik; RAKHMALEVICH, Ye.M., ~~mladshiy nauchnyy sotrudnik~~; KRAMAGANOVA, A.V., mladshiy nauchnyy sotrudnik; IVANOVA, N.N., mladshiy nauchnyy sotrudnik; KHRUNOVA, A.P., mladshiy nauchnyy sotrudnik; BEL'YAKOVA, A.G., vrach; ZATURENSKAYA, P.I., vrach

Pathogenesis and treatment of eczema and neurodermatitis in children. Vest.derm.i ven. no.12:3-8 '61. (MIRA 15:1)

1. Iz TSentral'nogo nauchno-issledovatel'skogo kozhno-venerologicheskogo instituta (dir. - kand.med.nauk N.M. Turanov) i iz Bol'nitsy imeni Korolenko (glavnnyy vrach A.I. Pustovaya).
2. Bol'nitsa imeni Korolenko (for Bel'yakova i Zaturenskaya).  
(ECZEMA) (SKIN—DISEASES)

RAKHMALOVICH, Ye.M.; BELYAYEVA, Ye.F.; IVANOVA, N.K.; SYCH, L.I.

Morphological and histochemical studies of the skin in lupus erythematosus. Vest.derm.i ven. no.1:18-23 '62. (MIRA 15:1)

1. Iz Tsentral'nogo nauchno-issledovatel'skogo instituta Ministerstva zdravookhraneniya RSFSR (dir. - dotsent N.M. Turanov).  
(LUPUS ERYTHEMATOSUS) (SKIN-DISEASES)

YUSIM, Veniamin Il'ich; RAKHMAN, Aron Davydovich; MOLYLEVSKIY,  
David Naumovich; RASSUDOV, N.S., doktor tekhn. nauk,  
retsenzent; SINEL'NIKOVA, L.N., red.

[Steam-turbine power trains] Paroturbinnye energopoezda. Mo-  
skva, Gosenergoizdat, Pt.2. 1963. 174 p. (MIRA 17:5)

L 23174-66

ACC NR: AP6003648

(A)

SOURCE CODE: UR/0104/65/000/010/0036/0040

AUTHOR: Rakhman, A. D. (Engineer)

2.6  
B

ORG: none

TITLE: Power trains for electric and heat supply

SOURCE: Elektricheskiye stantsii, no. 10, 1965, 36-40

TOPIC TAGS: electric power plant, railway equipment, heating engineering

ABSTRACT: There are over 300 power-supplying 1000-5000-kw trains in the Soviet Union totaling about 1000000 kw; they have been used for electric power supply in isolated regions where centrally generated power is not available. The article reports experience with the existing and heat-supply planning of B-4000, Ch-2500, and DB-3000 power trains having 12-ton boilers; each train is, in effect, a condensation-type electric-power plant. These suggestions are made: (1) Fixed steam extraction for house-heating purposes; (2) Simple construction (sketch supplied) of the extraction unit; (3) At rated electrical load, the heat extraction from the turbine may amount to 1-3 Gcal/hr, with a maximum of 5-6 Gcal/hr at 0.6-0.8

Card 1/2

UDC: 621.311.28.004

L 23174-66

ACC NR: AP6003648

rated load; (4) Simple heat-transfer system is preferable; if possible, noncirculating steam delivery should be used; (5) Essential savings (10000-25000 rubles per year) can be expected from such combined utilization of power trains. Orig. art. has: 5 figures and 2 tables.

SUB CODE: 09,13/SUBM DATE: none

Card 2/2 LJC

RAKHMAN, A.S.

System for steam take-off from the B-4000 turbine of an electric power plant mounted on railroad cars. Energetik. 13 no. 2:12-13 F '65. (MIRA 18:6)

AUTHOR:

Rakhman, B. M.

SOV/32-24-10-43/70

TITLE:

A Tensiometer for Measuring the Elongation in Testing the Creep and Endurance Limit by Means of Small-Dimension Machines  
(Tenzometr dlya izmereniya udlineniya pri ispytaniii na polzuchest' i dlitel'nuyu prochnost' na malogabaritnykh mashinakh)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1272-1273 (USSR)

ABSTRACT: A tensiometer was constructed to be used in the tests mentioned in the title; its diagram and description are given. It is mentioned that to avoid friction and "seizing" an electromechanical vibrator (Ref 1) of the type of a T-171 telephone relay is mounted in the hinged joints at the rocking shaft; this vibrator is driven by a 36 Volt a. c. In the creep tests better results were obtained with samples of a gage length of 50 mm and a diameter of 5 mm. These samples make possible the most accurate determination of the ratio between the absolute elongation of the sample and its initial length. In the case of a destruction of the sample in endurance tests the frame of the tensiometer is expanded (by a spring) and the indicator operates to relieve. By using the tensiometer described the investigations of the creep can be carried out without the expensive machines VP-101.

Card 1/2

SOV/32-24-10-43/70

A Tensionmeter for Measuring the Elongation in Testing the Creep and Endurance Limit by Means of Small-Dimension Machines

IskTI -2, TsNIITMASH by means of machines of small dimensions.  
There are 1 figura and 1 reference, which is Soviet.

Card 2/2

18.8200 2608.1500, 1146.04

85046

S/126/60/010/904/018/023  
E111/E452

AUTHORS: Rakhman, B.M., Madorskij, A.Ya. and Obukhovskij, V.V.

TITLE: Some Peculiarities in the Creep of Type EI696 Steel

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.4,  
pp.617-621

TEXT: Type ЭИ696 (EI 696) steel has the following composition, %:  
C - up to 0.1; Si and Mn - up to 1; S - up to 0.02;  
P - up to 0.03; Al - up to 0.8; Cr - up to 10 to 12.5;  
Ni - 18 to 21; Ti - 2.6 to 3.2; B - 0.008 to 0.02. It is  
used for parts working at up to 600 to 700°C but its creep and its  
relaxation at 450 to 750°C have not been sufficiently studied.  
The authors report their creep tests on this steel, using the method  
described by Rakhman (Ref.3) and temperatures of 400, 500, 600, 650,  
700 and 750°C. Creep curves for 500, 650, 700 and 750°C are shown  
in Figs.1 to 4 respectively. It was found that at 500, 600 and 650°C  
the specimen length either stays constant or even decreases,  
contrary to normal creep behaviour. The authors attribute this  
anomalous behaviour to continuation of solid-solution decomposition  
during testing and sought to follow this effect by measuring  
electrical resistivity of creep-tested specimens with a type

Card 1/2

85016  
S/126/60/010/004/018/023  
E111/E452

Some Peculiarities in the Creep of Type EI696 Steel

YTB-3 (UTV-3) bridge. Fig.5 shows resistivity as a function of creep test temperature for various test stresses: there is a minimum at 650°C. Using the X-ray back-reflection method with copper radiation, the lattice parameters for the solid solution in creep tested specimens was determined. Fig.6 shows this as a function of temperature for various test stresses. The results confirm those of resistivity measurements, indicating that the general tendency is for rapid solid-solution decomposition to occur during holding of type EI696 steel under load. The work shows that the steel can undergo brittle fracture under conditions of constant overall (plastic and elastic) deformation because of its shrinkage at 500 to 600°C; at 500 to 650°C fracture occurs without appreciable plastic deformation. The authors recommend revision of heat-treatment conditions to eliminate negative creep and failure without deformation. There are 6 figures and 3 references:  
2 Soviet and 1 English.

SUBMITTED: November 17, 1959 (initially)  
March 10, 1960 (after revision)

Card 2/2

111-111111 B.M.

18

Sovoshechaniye po ustalosti metallov. 2nd., Moscow, 1960.

Tekhnicheskaya preprint\* metallurgicheskogo in-ta im. V.I. Lenina po ustalosti metallov, 24 - 27 may 1960 g. (Tekhnicheskaya Strength; Materials of the Conference held on the Fatigue of Metals, held May 24 - 27, 1960). Izd. In-ta po metallovedeniu. 330 p. Errata slip inserted. 2000 copies printed.

Resp. Ed.: I. A. Odintsov, Corresponding Member of the Academy of Sciences of the USSR; Dir. of Inst.: N. G. Chernov; Tech. Ed.: A. P. Sizova.

PURPOSE: This collection of articles is intended for scientific research workers and engineers.

COVERAGE: The collection contains papers presented and discussed at the second conference on fatigue of metals, which was held at the Institute of Metallurgy, May 1960. These papers deal with the nature of fatigue fracture, the mechanism of formation

Card 1/0

Cyclic Metal Strength (Cont.)

SOV/6025

and growth of fatigue cracks, the role of plastic deformation in fatigue fracture, an accelerated method of determining fatigue strength, the plotting of fatigue diagrams, and various fatigue test methods. New data are presented on the sensitivity of high-strength steel to stress concentration, the effect of stress concentration on the criterion of fatigue failure, the effect of the size factor on the strength of metal under cyclic loads, and results of endurance tests of various machine parts. Problems connected with cyclic metal toughness, internal friction, and the effect of corrosion media and temperature on the fatigue strength of metals are also discussed. No personalities are mentioned. Each article is accompanied by references, mostly Soviet.

TABLE OF CONTENTS:

NATURE OF FATIGUE FRACTURE

Oding, I. A. Diffusionless Mechanism of Formation and Growth of a Fatigue Crack  
Card 2/1

3

• Cyclic Metal Strength (Cont.)	SOV/6025	2
Gladirevskaya, S. A., L. V. Ignatyuk, and V. A. Svetilitskiy. Unit for the Study of Corrosion Fatigue of Metals		
Aleksandrov, B. I. Effect of Temperature and Steel History on the Endurance Limit of Oxidation-Resistant and Heat- Resistant Steels and Alloys	250	
Oding, I. A., and Yu. V. Gostechkin. Effect of Temperature Variations on the Strength of the Metal of Gas-Turbine Blades	257	
Rakhman, B. M. Procedure of Thermal Fatigue Test Under <u>Given Stressess</u>	267	
FATIGUE STRENGTH OF MACHINE PARTS		276
Aleksandrov, B. I. and I. B. Klibanskiy. Study of the Endurance of Tractor-Engine Connecting Rods	284	

Card 8/9

S/277/63/000/004/009/013  
A004/A127

AUTHOR: Rakhman, B.M.

TITLE: Method for testing thermal fatigue at given stresses

PERIODICAL: Referativnyy zhurnal. Otdel'nyy vypusk. 48. Mashinostroitel'-nyye materialy, konstruktsii i raschet detaley mashin, no. 4, 1963, 39, abstract 4.48.251. (In collection "Tsiklich. prochnost' metallov". Moscow, AS USSR, 1962, 276 - 283)

TEXT: The author presents a survey on the methods of testing thermal fatigue existing at present and suggests a device for testing the thermal fatigue in which heating and cooling of the specimens are combined with definite stresses accompanying this process. One end of the cylindrical specimen is rigidly fixed to the device, while the other end, under the effect of heating or cooling, may expand or contract. To cause thermal stresses, a system of levers and weights is provided for restricting the movements of the specimen. The specimen is heated by passing electric current through it, while cooling is effected by air blowing. According to the suggested method,

Card 1/2

Method for testing thermal...

S/277/63/000/004/009/013  
A004/A127

deformation, destruction and failure tests can be carried out. The author presents the results of testing grade 3M-617 (EI-617) steel for thermal fatigue.

[Abstracter's note: Complete translation.]

Card 2/2

39630  
S/123/62/CCC/CC7/CC6/CC3  
E073/E535

18.11.30

AUTHOR: Rakhman, B.M., Engineer

TITLE: Heat treatment of chromium-nickel-titanium steel

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,  
no.7, 1952, 48-49

TEXT: In a previous paper the author showed that type  
X11N20T3P (Kh12N20T3R) steel (0.08% C, 0.26% Si, 0.6% Mn,  
0.005% S, 0.01% P, 11.23% Cr, 20% Ni, 0.49% Al, 2.76% Ti, 0.02% B)  
can develop undesirable negative creep in the temperature range  
500 to 650°C if subjected to the following heat treatment:  
austenizing at 1170°C, holding for two hours, cooling in air to  
750°C, holding for 16 to 25 hours, followed by cooling in air.  
Further investigations have shown that this creep can be  
substantially reduced by applying the following heat treatment:  
holding at 1170°C, cooling in air to 1000°C, holding for two hours,  
cooling to 300°C, holding for four hours, cooling to 700°C,  
holding for twenty hours, following by final cooling in air.  
Specimens heat treated in this way had a negative creep of only  
0.01% after being loaded at 600°C with a stress of 50 kg/mm<sup>2</sup> for a

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S/032/62/028/002/021/037  
B139/B104

AUTHOR: Rakhman, B. M.

TITLE: Investigation of stress relaxation during extension in a rigid frame

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 2, 1962, 209 - 211

TEXT: The author developed a device for determining the relaxation of rod specimens in a rigid frame, with the tested rod simultaneously serving as a dynamometer (Fig. 2). The lower adjustable holding device (2) is fixed by two nuts (3) and (4). The specimen is loaded by means of a lever (5). With the smallest measuring weight (50 g), the error of measurement is  $\pm 0.03 \text{ kg/mm}^2$ . A tensiometer consisting of three quartz rods, is attached to the upper holding device (6). The tapered ends of the two lateral quartz rods (7) rest upon a disk (8), the tip of the center rod (9) penetrates into the bore of the specimen. The indicating device (10) has a 0.001 mm graduation. (11) is fixed by plate springs (12). The electric heater (13) suspended by two ropes, keeps the temperature of the specimen constant ( $20 - 750^\circ\text{C}$ ). For one hour, the

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Investigation of stress relaxation... S/032/62/028/002/021/037  
B139/B104

specimen is kept at a given temperature, and the indicating device is then adjusted to zero. The required amount of weights is calculated from the

$\sigma_0 \cdot F = g$

formula  $P = \frac{g}{n}$ , where  $F$  is the specimen cross section,  $g$  is the weight of lever and suspension, and  $n$  is the ratio of the lever arms. Next, the lower holding device is fixed with the screws (3) and (4), and the weights are removed. After a given time, the screws (3) and (4) are loosened again, and weights are added until the specimen shows its previous deformation. The maximum load applied to the specimen in this device is 1500 kg. To plot the primary curves of relaxation for 1000 hrs, it is sufficient to record the values of measurement after 1, 4, 16 hrs, and then every 24 hrs. Changes in volume may occur with structural changes of highly heated metals. At 600°C, the relaxation of 3U612 (EI612) varies considerably. The method described allows above all the study of relaxation properties of metals during changes in structure and volume occurring simultaneously. A. B. Antonovich, S. Ya. Kononykin, Ye. V. Martynov, and Yu. P. Artem'yev assisted in developing the device. There are 3 figures and 5 Soviet references.

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RAKHMAN, B.M.

Determination of the characteristics of creep of metals by means  
of bench testers. Zav.lab. 28 no.8:975-978 '62. (MIRA 15:11)  
(Creep of metals)

RAKHEM, Boris Moiseyevich; NAUMOVA, Ye.A., nauchn. red.;  
SHILLING, V.A., red.izd-va; GVIPTS, V.L., tekhn. red.

[Determining relaxation characteristics on bolted joint  
models] Opredelenie kharakteristik relaksatsii na mo-  
deliakh boltovykh soedinenii. Leningrad, 1963. 15 p.  
(Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen  
peredovym opytom. Seriya: Metallovedenie i termicheskaiia  
obrabotka, no.2) (MIRA 16:12)  
(Metals—Testing) (Strains and stresses)

L 33320-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWT(x)/EWT(y)/EWT(z)/EWT(t)/  
EWP(f) EM-JL/PD-1 EM/MJW/JD/HW

ACCESSION NR: AP5004234

8/0145/64/000/012/0039/0048

AUTHORS: Mal'kevich, A. V. (Aspirant); Marinets, T. K. (Candidate of technical sciences, Docent); Rakhman, B. M. (Engineer)

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35  
B

TITLE: Effect of changing temperature regimes on fatigue strength

SOURCE: IVUZ. Mashinostroyeniye, no. 12, 1964, 39-48

TOPIC TAGS: fatigue strength, fatigue life, nickel alloy, steel/EI 661 alloy, EI 572 steel, EI 415 steel, UKT 3000 testing machine

ABSTRACT: The fatigue strength of heat-resistant nickel alloy EI-661 in the temperature region 800-950C was investigated using heat-treated (10 hours at 1200C, 5 hrs at 1050C, air-cooled) cylindrical specimens in a fatigue testing machine (type UKT-3000) at 2860 cycles/minute. The fatigue curves were obtained for constant temperatures of 800, 900 and 950C and for temperature cycling conditions a, b, c, and d in Fig. 1 on the Enclosure, where the heating and cooling rate was 12.5 degrees/minute in all cases. The results are shown graphically. These data as well as data on alloys EI-572 and EI-415 were also replotted in temperature-cycle coordinates. Fatigue data at different temperatures can be used to calculate a coefficient of cumulative damage for parts operating under changing temperature conditions:

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ACCESSION NR: AP5004234

A =  $\sum_{i=1}^n \frac{t_i}{\tau_i}$ , where  $t_i$  - operating time at some stress and temperature,  $\tau_i$  - time for failure under these temperature and stress conditions. To simplify the calculation of A, equations for A were derived for different temperature cycle profiles (rectangular, multiple steps, saw-tooth, triangular and trapezoidal) based on the fact that the fatigue curves in logarithmic stress-cycle and temperature-cycle coordinates are very nearly linear. Orig. art. has: 3 tables, 1 formula, and 6 figures.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute)

SUBMITTED: 00

ENCL: 01

SUB CODE: MM

NO PEF Sov: 002

OTHER: 000

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